

## CLAIMS

1. (Previously Presented) A biosensor with multi-channel A/D conversion, comprising:

a chip to generate a time-dependent analog signal in response to an enzyme reaction initiated by a specific component of a specimen making contact with the chip;

a multi-channel A/D converter with multiple channels each of which is configured to simultaneously receive the time-dependent analog signal in each sampling interval, the multi-channel A/D converter being configured to convert the time-dependent analog signal to a set of digital signals; and

a microprocessor to receive the set of digital signals in a sampling period and to determine the content of the specific component based on the set of digital signals.

2. (Previously Presented) The biosensor of claim 1, wherein the time-dependent analog signal includes a response current.

3. (Original) The biosensor of claim 2, further comprising a current/voltage converter to convert the time-dependent analog signal to a time dependent output voltage prior to sending to said multi-channel A/D converter.

4. (Original) The biosensor of claim 3, wherein said current/voltage converter includes an operational converter.

5. (Original) The biosensor of claim 1, wherein said multi-channel A/D converter includes a sampler, a multi-channel converter and a logic circuit.

6. (Original) The biosensor of claim 3, wherein said multi-channel A/D converter includes a sampler, a multi-channel converter and a logic circuit.

7. (Original) The biosensor of claim 4, wherein said multi-channel A/D converter includes a sampler, a multi-channel converter and a logic circuit.

8. (Previously Presented) The biosensor of claim 1,  
wherein said microprocessor includes a mapping table of peak value versus content of the specific component, the peak value representing a maximum value of a time-dependent discharge curve constituted by the set of digital signals collected during the sampling period; and  
wherein said microprocessor is configured to determine the content of the specific component in accordance with the mapping table.

9. (Previously Presented) The biosensor of claim 3,  
wherein said microprocessor includes a mapping table of peak value versus content of the specific component, the peak value representing a maximum value of a time-dependent discharge curve constituted by the set of digital signals collected during the sampling period; and  
wherein said microprocessor is configured to determine the content of the specific component in accordance with the mapping table.

10. (Currently Amended) The biosensor of claim 1,  
wherein said microprocessor includes a mapping table of rising time versus content of the specific component, the rising time corresponding to a maximum value of a time-dependent discharge curve constituted by the ~~sets~~ set of digital signals collected during the sampling period; and  
wherein said microprocessor is configured to determine the content of the specific component in accordance with the mapping table.

11. (Currently Amended) The biosensor of claim 3,  
wherein said microprocessor includes a mapping table of rising time versus content of the specific component, the rising time corresponding to a maximum value of

a time-dependent discharge curve constituted by the ~~sets~~ set of digital signals collected during the sampling period; and

wherein said microprocessor is configured to determine the content of the specific component in accordance with the mapping table.

12. (Previously Presented) The biosensor of claim 1, wherein further comprising a liquid crystal display to display a reading of the content of the specific component.

13. (Previously Presented) The biosensor of claim 3, wherein further comprising a liquid crystal display to display a reading of the content of the specific component.

14. (Previously Presented) A method for determining a content of a specific component of a specimen, comprising:

generating a time-dependent analog signal in response to a content of a specific component of the specimen initiating an enzyme reaction on a chip of a biosensor;

simultaneously sending the time-dependent analog signal to each channel of a multi-channel A/D converter for converting to a set of digital signals during each sampling time;

sending the set of digital signals to a microprocessor; and

determining the content of the specific component in accordance with the set of digital signals collected during a sampling period.

15. (Original) The method of claim 14, wherein the time-dependent analog signal is in a form of response current.

16. (Previously Presented) The method of claim 15, further comprising converting the time-dependent analog signal to a time-dependent output voltage prior to converting to the set of digital signals.

17. (Previously Presented) The method of claim 14, wherein further comprising establishing a time-dependent discharge curve in accordance with the set of digital signals collected during the sampling period.

18. (Original) The method of claim 17, wherein the content of the specific component is determined in accordance with the time-dependent discharge curve and a mapping table of peak value versus content of the specific component, the peak value representing a maximum value of the time-dependent discharge curve.

19. (Original) The method of claim 17, wherein the content of the specific component is determined in accordance with the time-dependent discharge curve and a mapping table of rising time versus content of the specific component, the rising time corresponding to a maximum value of the time-dependent discharge curve.

20. (Previously Presented) The method of claim 16, wherein further comprising establishing a voltage-time discharge curve in accordance with the set of digital signals collected during the sampling period.